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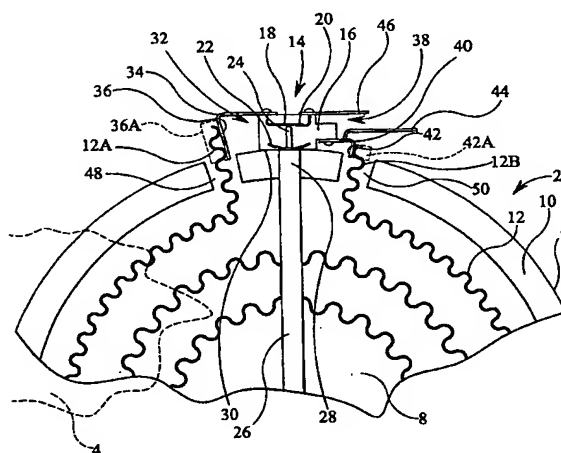
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(54) Title: TEMPERATURE-LIMITING DEVICE



(57) Abstract: A temperature-limiting device (14) is provided for an electric heater (2), the heater (2) being located behind a heatable surface (4) and comprising a dish-like support (6) having therein at least one electric heating element (12) having first and second terminal regions (12A, 12B). The device comprises thermally responsive bimetallic means (22) provided in a housing (16). The housing (16) is supported at a peripheral region of the heater (2), at least partially externally of the support (6). The bimetallic means (22) is thermally coupled with the heater (2) to sense heat generated therein by the heating element (12) and to respond at a predetermined temperature to operate at least one switch means (18) located in the housing (16). The housing (16) has first and second sides (32, 38) opposite each other provided with first and second electrically conductive elements (34, 40) accessible at the sides of the housing (16), externally of the dish-like support (6), for electrical connection to the terminal regions (12A, 12B) of the heating element (12).

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B. FIELDS SEARCHED

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Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the International search (name of data base and, where practical, search terms used)
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C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X Y	US 6 121 587 A (EMTMANN SILVIA ET AL) 19 September 2000 (2000-09-19)	1-28, 34, 36-43 29-33, 35
Y	GB 2 225 920 A (EMACO LTD ; REDRING ELECTRIC LTD (GB)) 13 June 1990 (1990-06-13)	29-33, 35
A	the whole document	1-28, 34, 36-43
A	EP 0 943 870 A (CERAMASPEED LTD) 22 September 1999 (1999-09-22)	1-43
A	EP 0 114 307 A (EGO ELEKTRO BLANC & FISCHER) 1 August 1984 (1984-08-01)	1-43
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	----- -/-	

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	GB 2 186 167 A (REDRING ELECTRIC LTD) 5 August 1987 (1987-08-05) the whole document	1-43
A	US 3 666 920 A (PRICE DAVID B) 30 May 1972 (1972-05-30) the whole document	1-43

INTERNATIONAL SEARCH REPORT

International Application No
PCT/GB2004/000178

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 6121587	A	19-09-2000	DE 19638517 A1 AT 215731 T AU 745337 B2 AU 4623197 A CA 2265783 A1 CZ 9900918 A3 DE 59706894 D1 WO 9812724 A1 EP 0927428 A1 ES 2175472 T3 JP 2001507500 T PL 332315 A1	26-03-1998 15-04-2002 21-03-2002 14-04-1998 26-03-1998 14-07-1999 08-05-2002 26-03-1998 07-07-1999 16-11-2002 05-06-2001 30-08-1999
GB 2225920	A	13-06-1990	DE 8914470 U1	21-06-1990
EP 0943870	A	22-09-1999	GB 2335541 A AT 238522 T DE 69907060 D1 DE 69907060 T2 EP 0943870 A1 ES 2198110 T3 US 6150641 A	22-09-1999 15-05-2003 28-05-2003 26-02-2004 22-09-1999 16-01-2004 21-11-2000
EP 0114307	A	01-08-1984	DE 3247028 A1 AT 29820 T DE 3373771 D1 EP 0114307 A1 ES 8406832 A1 YU 244283 A1	20-06-1984 15-10-1987 22-10-1987 01-08-1984 01-11-1984 31-12-1985
GB 2186167	A	05-08-1987	NONE	
US 3666920	A	30-05-1972	AU 463849 B2 AU 3735971 A CA 925140 A1 DE 2202916 A1 ES 398716 A1 FR 2123397 A5 GB 1370638 A IT 946888 B ZA 7108533 A	07-08-1975 28-06-1973 24-04-1973 17-08-1972 16-07-1974 08-09-1972 30-10-1974 21-05-1973 27-09-1972